

Stable Isotopes of Terbium

Isotope	Z(p)	N(n)	Atomic Mass	Natural Abundance	Nuclear Spin
Tb-159	65	94	158.925343	100.00%	3/2+

65

Tb

Terbium was discovered in 1843 by Carl Mosander. It is named for the Swedish town of Ytterby.

A silvery-grey metal, terbium has a metallic luster and a hexagonal crystal structure. It is malleable, ductile, and soft enough to be cut with a knife. Its salts are colorless. It is insoluble in water and soluble in acids. In solution the metal exists only in a trivalent state. Terbium forms binary compounds with a number of elements, including hydrogen, halogens, nitrogen, phosphorus, sulfur, carbon, silicon, selenium, tellurium, boron, arsenic and antimony. Neither terbium metal nor its salts has any important commercial use.

Properties of Terbium

Name	Terbium
Symbol	Tb
Atomic number	65
Atomic weight	158.925
Standard state	Solid at 298 °K
CAS Registry ID	7440-27-9
Group in periodic table	N/A
Group name	Lanthanoid
Period in periodic table	6 (Lanthanoid)
Block in periodic table	f-block
Color	Silvery white
Classification	Metallic

Properties of Terbium (continued)

Melting point	1359 °C
Boiling point	3123 °C
Vaporization point	3221 °C
Thermal conductivity	11.10 W/(m·K) at 298.2 °K
Electronegativity	1.2
Heat of vaporization	295.00 kJ·mol ⁻¹
Heat of fusion	10.80 kJ·mol ⁻¹
Density of liquid	7.65 g/cm ³ at 1359 °C
Density of solid	8.22 g/cm ³
Electron configuration	[Xe]4f ⁹ 6s ²
Mean atomic radius	1.728 Å
Ionic radii	Tb ³⁺ : 0.923 Å (coordination number 6) and 1.04 Å (coordination number 8)
Oxidation states	+3, +4
Most common oxidation state	+3